# Multimodular multilevel converters with input/output linearity

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## Abstract

Multilevel converters constitute the key technology of power electronics to reach the high power ratings required by controllers of flexible AC transmission systems (FACTS). This paper shows that the sinusoidal pulsewidth modulation (SPWM) technique, as applied to multilevel converters, inherently requires a high switching rate. The paper then presents a strategy based on multiple modules ofmultilevel converters which operate with the lowest possible switching loss (each gate-turn-off thyristor (GTO) switches ON and OFF only once during the modulation period), while maintaining the high gain-bandwidth product of linear amplifiers to handle fast feedbacks, which FACTS controllers must be capable of, in order to carry out dynamic performance enhancement

**Keywords:** PWM power convertors; amplifiers; feedback; flexible AC transmission systems; switching circuits; thyristor convertors